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CENTRE FOR ENVIRONMENTAL HEALTH AND SUSTAINABILITY

The Paul Wilkinson Memorial Lecture: The need for action and engagement in science

Anna Hansell
Professor of Environmental Epidemiology
University of Leicester

Acknowledgements and thanks to:

Ruth Doherty, University of Edinburgh
Michael Davies, UCL
James Milner, LSHTM
Alison Gowers, COMEAP secretariat, UKHSA
Samuel Cai, Hayley King, Thiphanie Riveron, University of Leicester

Paul Daryll Wilkinson

Environmental epidemiologist. He was born in Yeovil, UK, on Dec 26, 1959 and died of a pulmonary embolism in Banbury, UK, on Sept 11, 2022 aged 62 years.

Paul Wilkinson, Professor of Environmental Epidemiology at the London School of Hygiene & Tropical Medicine (LSHTM), UK, spent more than two decades researching health in relation to air pollution, the built environment, and climate change. "Besides being technically adept", says Sir Andy Haines, LSHTM's Director from 2001 to 2010 and now its Professor of Environmental Change and Public Health, "Paul had a vision of where he thought we should be going—which was towards a society with health at the centre, where policies supported it through a range of sectors, and also helped to stabilise the climate by reducing greenhouse gas emissions." James Milner, like Wilkinson a member of LSHTM's Department of Public Health, Environments and Society, worked closely with him for 10 years. "Paul was passionate about making things happen", Milner recalls. "For him it wasn't enough just to do science, to publish papers, and leave it at that. He wanted to make things better, to understand how science could change policy."

Wilkinson's enthusiastic support for science-based policy found expression in his participation in two *Lancet* Series. The first, in 2007, was on energy and health. "This was quite ground-breaking at the time", says Haines, with whom Wilkinson worked closely on the Series. "It made links between ill health and lack of access to clean energy, and also the importance of transitioning to clean low carbon energy." The second Series, which appeared 2 years later and built on its predecessor, was on health and climate change and aimed to "accelerate political and public assent for large cuts in greenhouse gas emissions".

Wilkinson started in epidemiology as a research fellow in the Epidemiological Research Unit of the National Heart and Lung Institute (NHLI) in London, UK. He had graduated in medicine from the University of Oxford, UK, in 1985 and spent 4 years in junior medical posts at hospitals in London, Bristol, and elsewhere before joining the NHLI in 1989. 4 years later he moved to LSHTM, specialised in environmental epidemiology, and was eventually awarded a chair there in the discipline.

Housing was among his earliest interests. He set up or took part in studies on the health impact of home ventilation, and on cold weather mortality and morbidity in relation to interventions in home energy efficiency. More generally, he evaluated the UK's plan for avoiding the adverse health effects of cold weather, and looked at the health impact of policies to reduce greenhouse gas emissions in high-income and low-income settings. His agenda also included air pollution and myocardial infarction, mortality in relation to atmospheric ozone depletion, and much else. A recent project for which Wilkinson was Scientific Director was the Wellcome Trust funded Complex Urban Systems for Sustainability and Health (CUSSH) programme. Set up jointly with Michael Davies, Professor of Building Physics and the Environment at University College London, UK, CUSSH works with partner organisations across four continents to help six cities, including Beijing, London, and Nairobi, to develop in ways that improve their population health and environmental sustainability. The ultimate aim is to produce a framework of practicable policy options, and Wilkinson was adept at doing this. "Paul was very inspirational", says Davies. "He encouraged people to think big but with appropriate ambition."

Another big project of which Wilkinson was principal investigator was funded by the EU. PURGE (Public health impacts in URban environments of Greenhouse gas Emissions reduction strategies) ran from 2011 to 2014. Using urban settings in Europe, China, and India as case studies, PURGE examined the effect of these strategies. Among other things, it showed how policies to increase active travel can decrease emissions and improve health, and underlined the importance of renewable energy sources and nuclear power for climate mitigation and health. As always, there was Wilkinson's urge to make things happen. "I've been in meetings or conferences with Paul where people were talking about lots of good research", says Milner. "And then Paul would stand up and say that it was great that everyone was doing this fantastic research, but things aren't changing anywhere near fast enough...We have to do more to influence policy." Haines believes that Wilkinson was motivated by a concern for equity in health, describing him as "a thoroughly good humoured man, kind to colleagues and pretty unflappable". Wilkinson leaves a wife, Kay, and a son, Guy.

Geoff Watts

Lancet Obituary
https://www.thelancet.com/action/showPdf?pii=S0140-6736%2822%2901942-0

LSHTM obituary
https://www.lshtm.ac.uk/newsevents/blogs/2022/obituary-paul-wilkinson

HEICCAM

The Health and Equity Impacts of Climate ChAnge Mitigation measures on indoor and outdoor air pollution exposure (HEICCAM) -www.heiccam.org

To develop an interdisciplinary and multi-sectoral network to improve research evidence, policy and regulatory advice about solutions on optimising the health impacts of changing indoor and outdoor air pollution under a low carbon future… with a legacy through expanded interdisciplinary research.

Annual Assembly 2021: Home energy efficiency and indoor/outdoor air quality

A little learning is a dangerous thing;

Drink deep, or taste not the Pierian spring:

Alexander Pope. *An Essay on Criticism.* 1711

Teaching and training

COMEAP Member's Expertise and Experience

- Professor of Environmental Epidemiology at the London School of Hygiene & Tropical Medicine (LSHTM)
- Trained in medicine and public health, began his epidemiological research at the National Heart and Lung Institute
  Research interests: climate change and other environmental determinants of health
- Co-director of the World Health Organization (WHO) Collaborating Centre on Global Change and Health, leads the NIHR Health Protection Research Unit in Environmental Change and Health, sits on WHO's Global Air Pollution and Health Technical Advisory Group (GAPH-TAG)

Professor Paul Wilkinson

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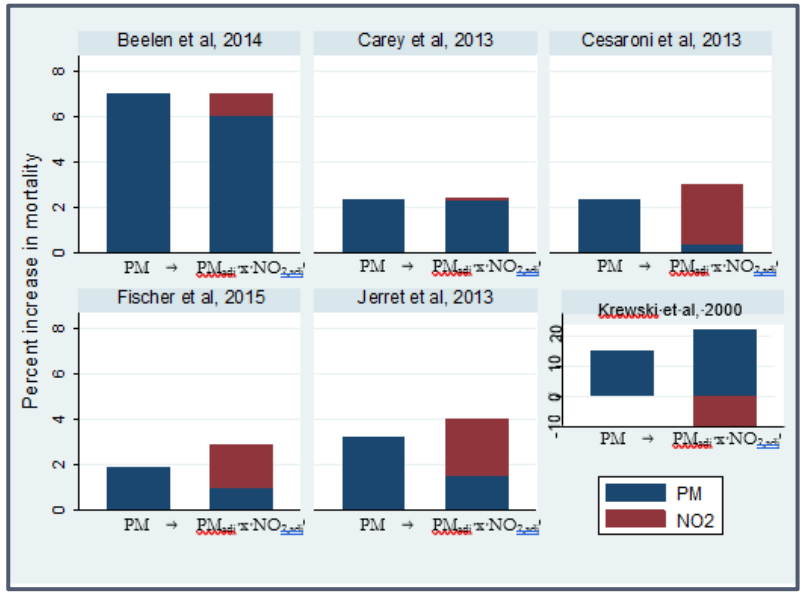
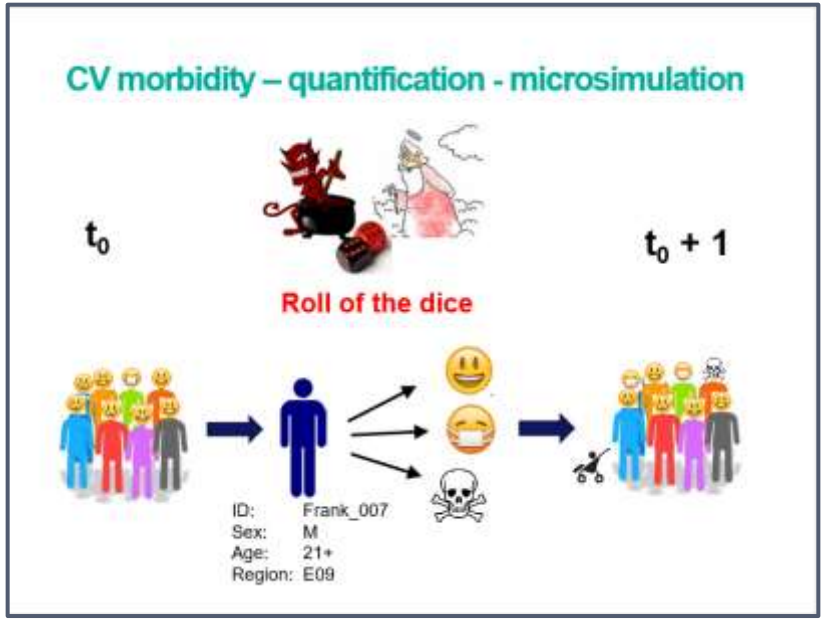
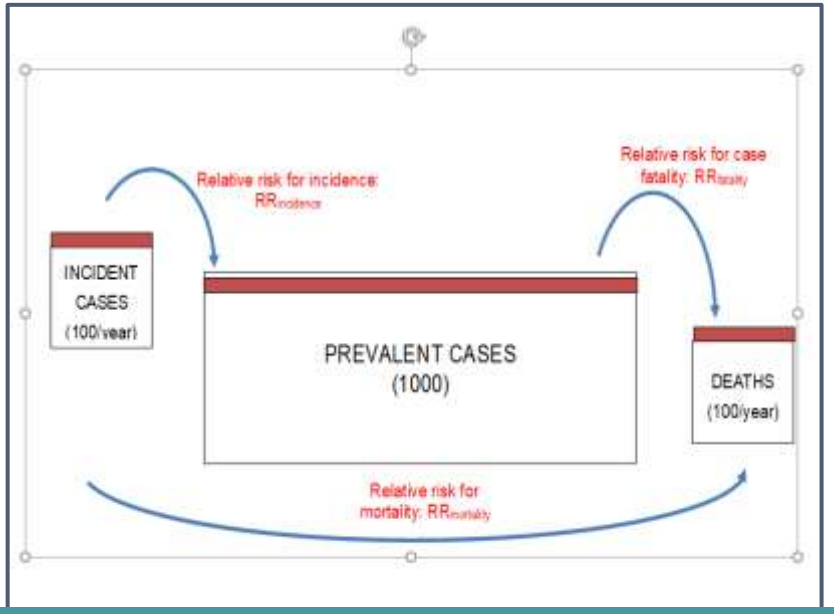


Table 7.1: Types of coefficients that might be used to represent associations between long-term average concentrations of $PM_{2.5}$ and NO_2 and mortality

Coefficient	Possible interpretation
Unadjusted coefficient for $PM_{2.5}$	Reflects the effect of $PM_{2.5}$ and also, to some extent, the effect of other pollutants with which $PM_{2.5}$ is correlated. These include other fractions of PM, NO_2, and other components of the air pollution mixture.
Unadjusted coefficient for NO_2	Reflects any causal effect of NO_2 and also, to some extent, the effects of other pollutants with which NO_2 is correlated. These include $PM_{2.5}$, other fractions of PM, and other components of the air pollution mixture (eg ultrafine particles, Black Carbon, Volatile Organic Compounds etc.).
Coefficient for $PM_{2.5}$ adjusted for NO_2	Reflects the effect of $PM_{2.5}$ and also, to some extent, the effects of other pollutants with which $PM_{2.5}$ is most closely correlated but excludes (as far as possible) effects associated with NO_2, and other components of the air pollution mixture which are more closely correlated with NO_2 concentrations than with $PM_{2.5}$ concentrations. Given the good evidence and plausibility of causality, it is reasonable to regard the majority of this effect as likely to be causally related to $PM_{2.5}$.
Coefficient for NO_2 adjusted for $PM_{2.5}$	Reflects any effect of NO_2 and also, to some extent, other pollutants with which NO_2 is closely correlated but excludes (as far as possible) effects associated with $PM_{2.5}$ concentrations and other components of the air pollution mixture that are more closely correlated with $PM_{2.5}$ concentrations than with NO_2 concentrations. Given the weaker evidence for plausibility and causality, the extent to which this effect is





COMEAP (2021) advice note to Defra: The associations between air pollutants and health effects reported in cohort studies are usually regarded as representing the effects of long-term exposure. However, this is an over-

COMEAP: an epidemiological contribution

Dedication to Prof. Paul Wilkinson

The NIHR Health Protection Research Unit in Environmental Change and Health Annual Conference 2023

Lancet series on Energy and Health 2007

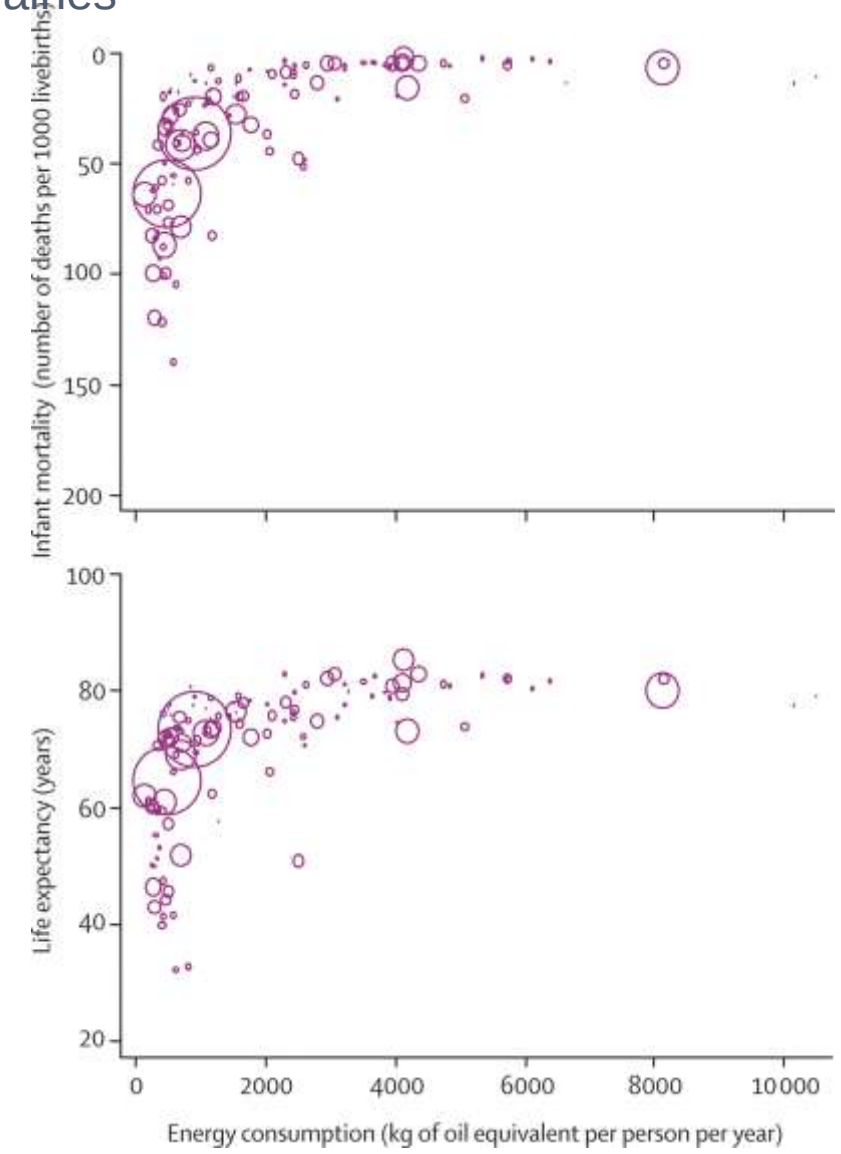
A global perspective on energy: health effects and injustices

Paul Wilkinson, Kirk R Smith, Michael Joffe, Andy Haines

***The Lancet* 2007, Volume 370**

Scatter plot of (A) infant mortality and (B) life expectancy *vs* energy use per person

Above about 2000kg oil equivalent per capita per year the health benefits plateau



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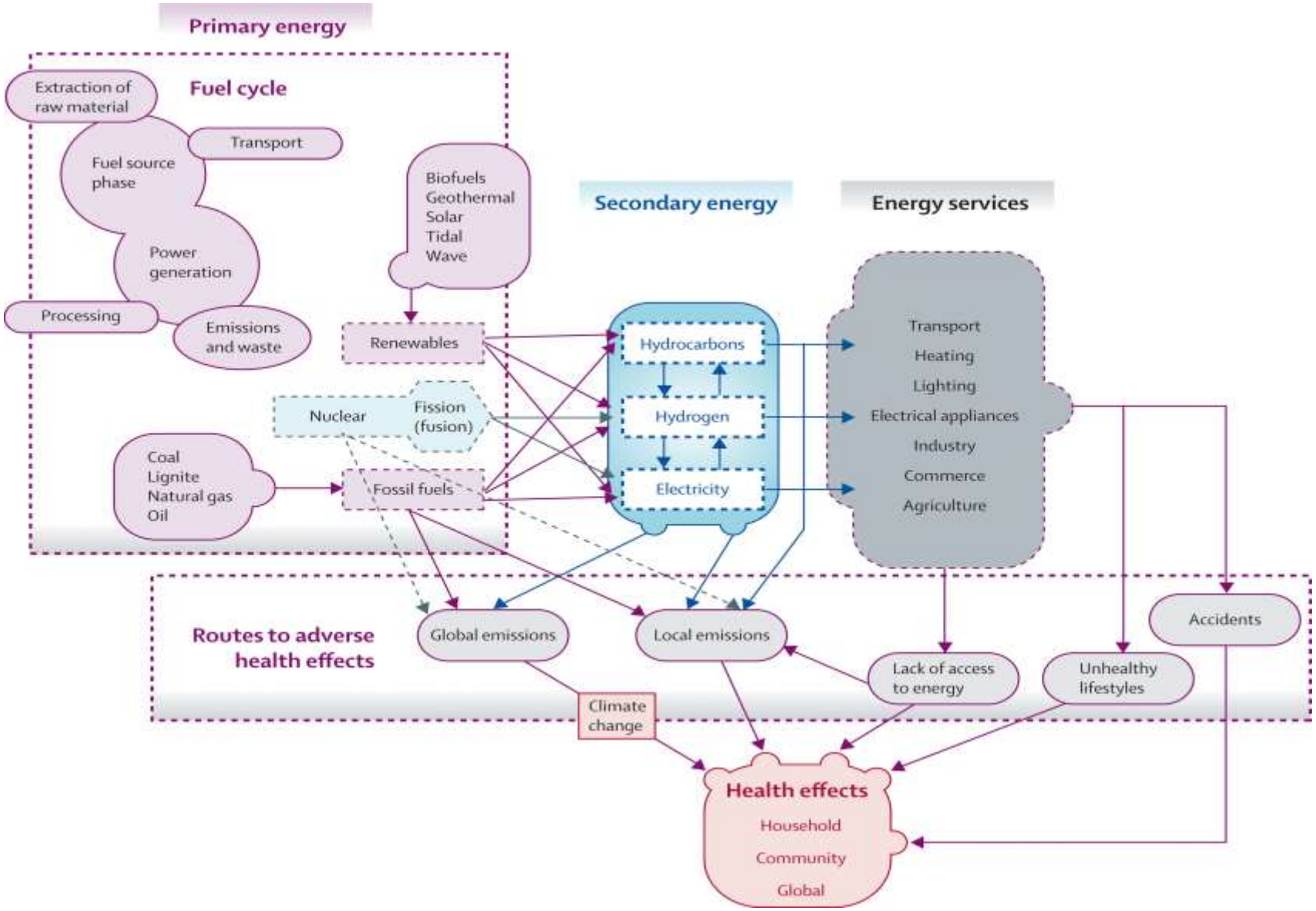
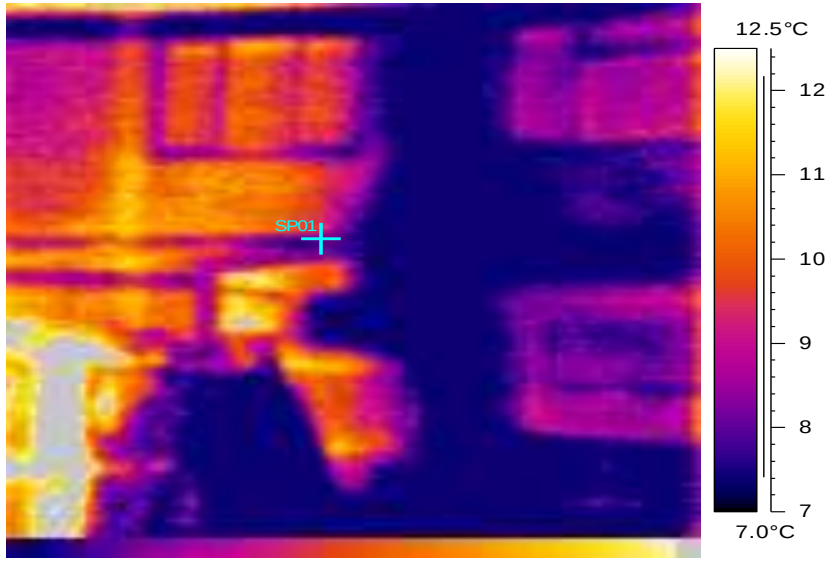
Connections between energy and health



Lancet series on Health and Climate Change

Public health benefits of strategies to reduce greenhouse gas emissions: household energy
Wilkinson et al. The Lancet 2009, Volume 374



Impacts	Reduced exposures e.g. to fine particles, radon, cold, mould, tobacco smoke
UK Premature deaths averted	~ 5400/ year
Mt-CO_2 saved (vs 1990)	55

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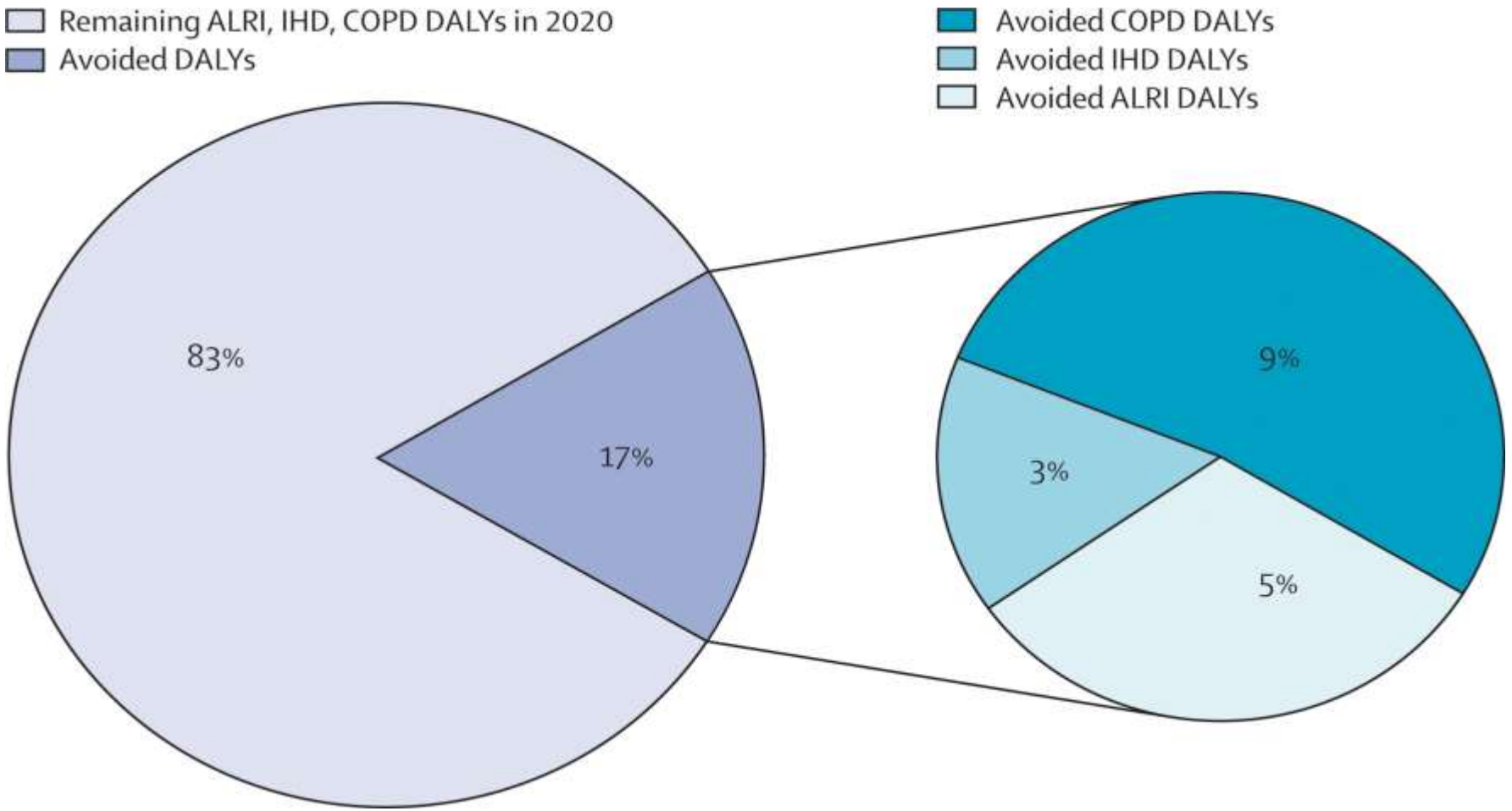
EU PURGE (Public health impacts in URban environments of Greenhouse gas Emissions reduction strategies) 2011 – 2014

Projected health benefits of large scale Indian stove programme after completion in 2020



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Some tributes from COMEAP Members

I always found Paul a most collegiate member of the Committee. Although he was on top of the detail, he was also really good at cutting through and coming up with a pragmatic and often insightful approach.

Paul hiked easily up those mountains of scientific complexity and then deftly levelled them with a finely-tuned turn of phrase

Paul had so much scientific insight… but above all, so much good humour and optimism

Paul's contributions to COMEAP, and to the field of environmental epidemiology generally, were outstanding

He was an immensely capable scientist and a cherished colleague who will be missed by all who knew him

Paul made a unique contribution. He had deep insights but could explain them simply. There are several examples where his lateral thinking had a substantial influence on the evolution of the Committee's opinion.

“What would Paul have said?”

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Public Health Warning on this lecture

This lecture will contain

- No new data or key exposure-response relationships to remember
- Not a lot on air pollution
- Anecdotes
- Tangents
- Differing fonts and formats
- Potentially annoying animations
- No self-help guides or even a clear conclusion

BUT

- It will help you reflect on how to get policy impact from your work
- Get you to think outside the box

Pandora’s Box

Pandora's Box

"What would Paul have said?"…

Why is it a box?

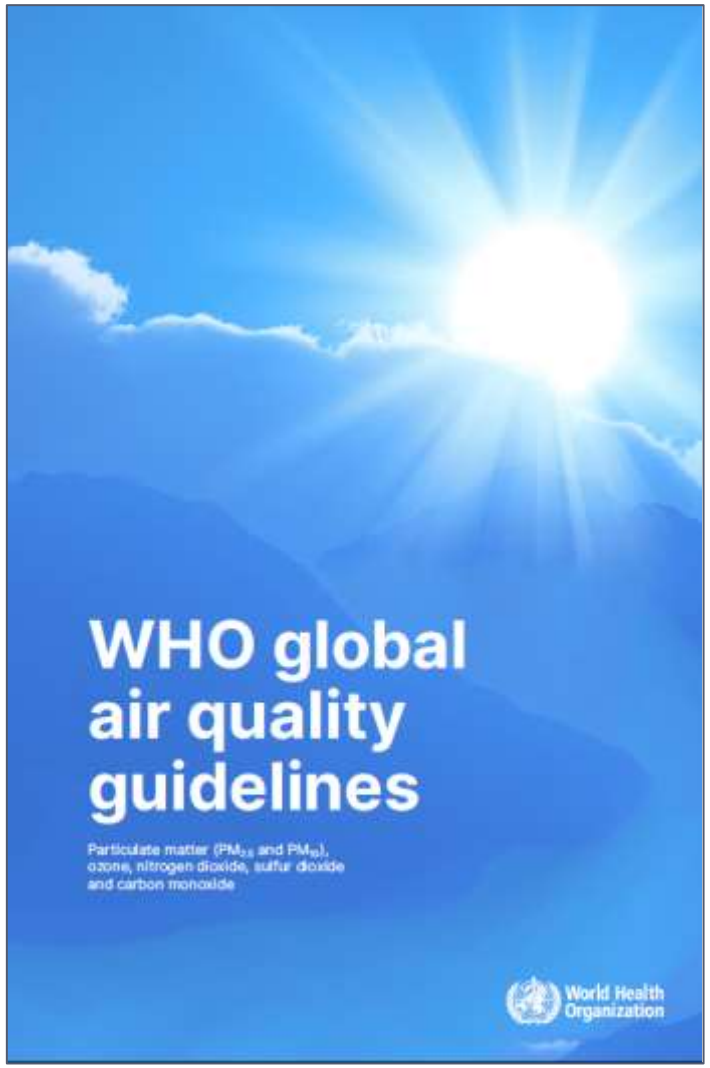
Why aren't the contents a vacuum lined double container with a security lock, hazard sign and written information?

Evil appears to be gaseous.

If hope is left in the box, it must be a liquid or solid. What is the best way to get hope out of the box?

The need for action

The need for action



Clean Air Programme

UK Clean Air Programme
https://www.ukcleanair.org

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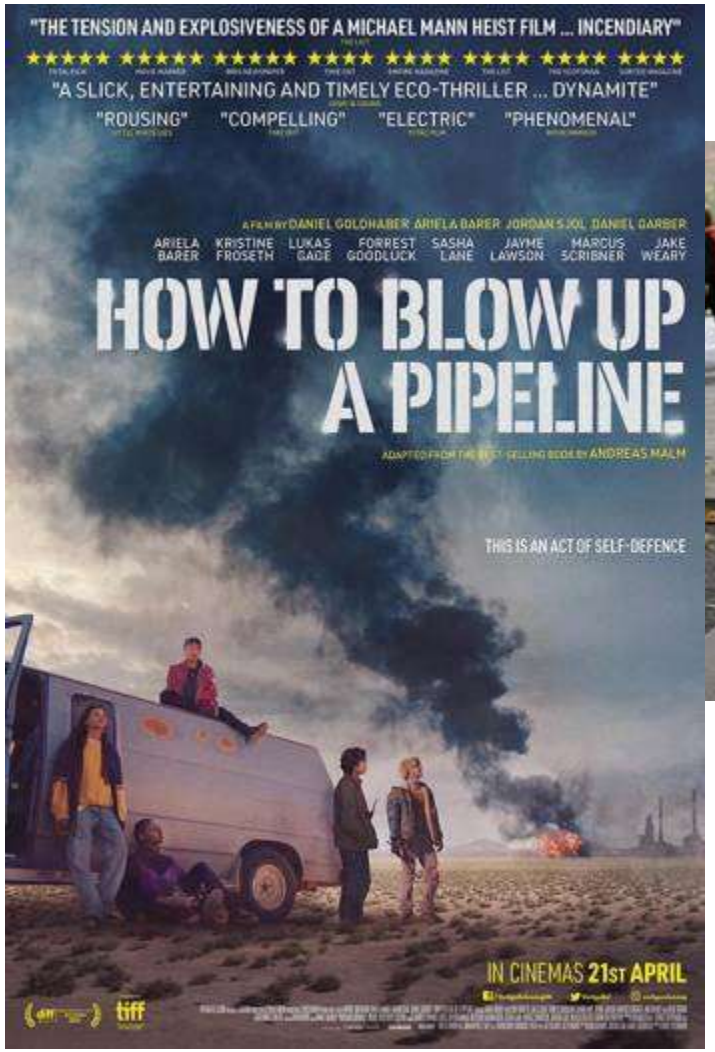
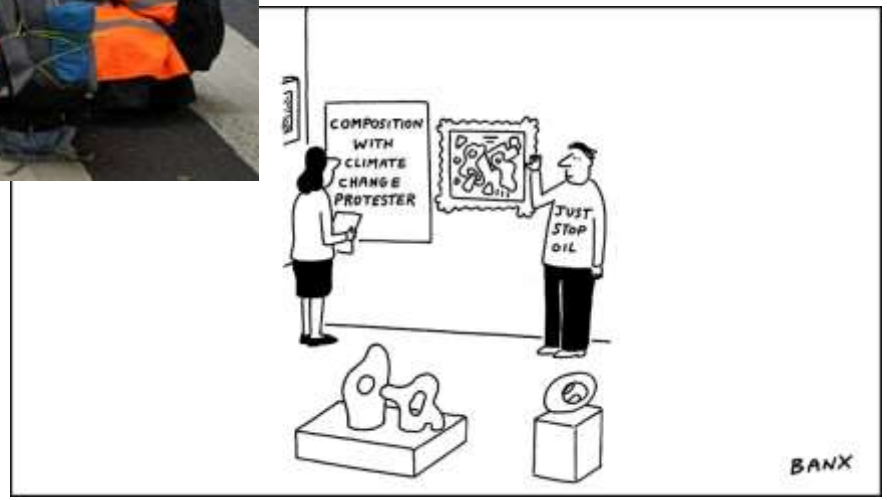
Action 2022/3?



https://www.theguardian.com/environment/2022/oct/06/just-stop-oil-activists-arrested-after-glueing-themselves-to-road-in-whitehall

https://news.sky.com/story/ashes-match-between-england-and-australia-disrupted-by-just-stop-oil-protest-12910976



Financial Times https://www.ft.com/content/998d08c1-f487-4b9e-ba2a-550656a6a279

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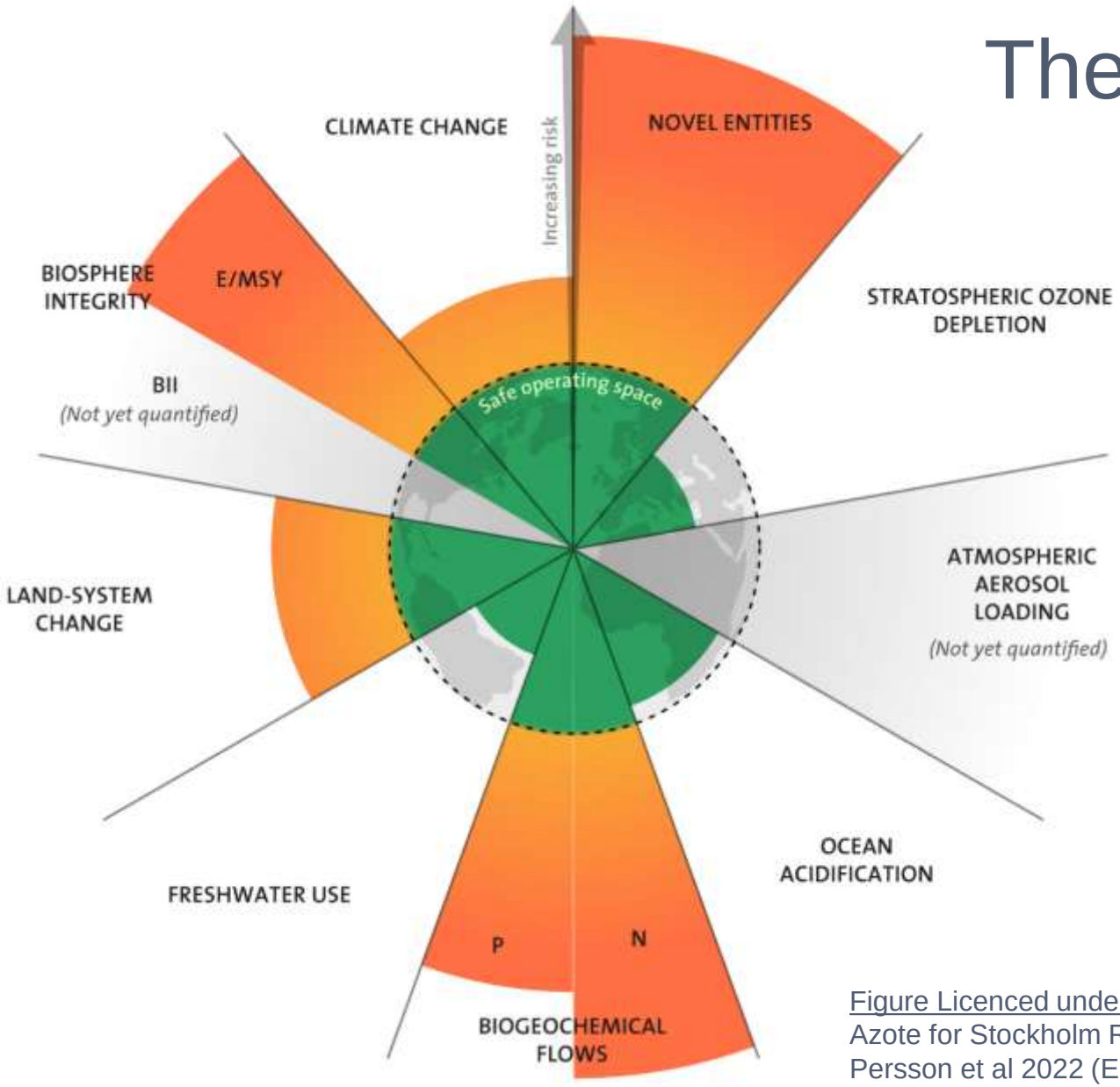
“Take a step back and consider context”

The nine planetary boundaries



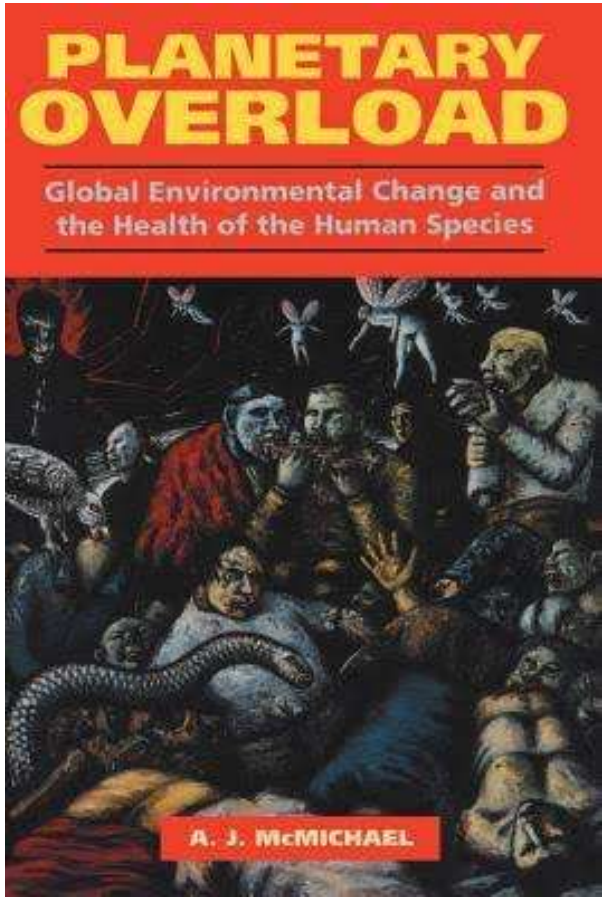
Work by Stockholm Resilience Centre

Novel entities include xenobiotic chemicals such as persistent organic pollutants (POPs) and persistent, bioaccumulative and toxic (PBT) chemicals, as well as plastics.

The high rate of change in production and variety of synthetic chemicals over the last four decades outpaces many other drivers of change.

Azote for Stockholm Resilience Centre, based on analysis in Persson et al 2022 (Env Sci & Tech) and Steffen et al 2015

There is no new thing under the sun…



The Anthropocene

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UK World Climate crisis Newsletters Football Coronavirus Business Environment UK politics Education Society Science Tech Global development

Environment

This article is more than 2 months old

H-bombs or chicken bones: the race to define the start of the Anthropocene

Damian Carrington
Environment editor

The mushroom cloud from 'Ivy Mike', the first ever hydrogen bomb to be detonated. The test took place on Enewetak, an atoll in the Pacific Ocean, in November 1952. Photograph: Reuters

Humanity is now a 'geological superpower' and declaring a new epoch is critical to tackling its impact, scientists say

Exactly where and when did the Anthropocene begin? Scientists are attempting to answer this epochal question in the coming months by choosing a place and time to represent the moment when

Most viewed

Rwanda scheme would 'completely erode' UK's standing on world stage

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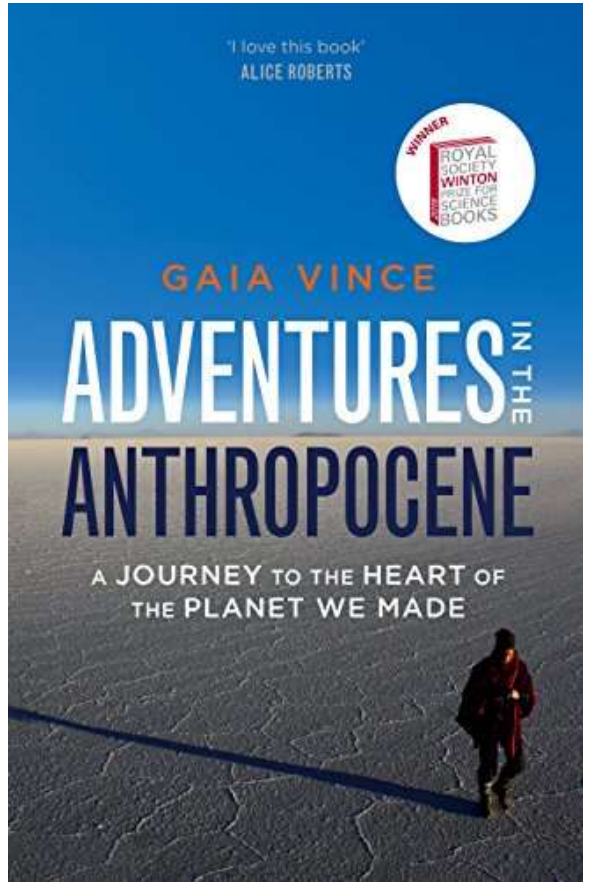
Living in cities

- **More than half the world's people now live in cities** - artificial constructs of densely packed, purpose-built living spaces, which act as giant factories consuming the planet's plants, animals, water, rocks and mineral resources. Humanity operates on an industrial scale…currently eighteen terawatts of energy at any time, 9 trillion cubic metres of water per year and 40% of global land area for food….
- …The Anthropocene is the urban age…already more than half of us live in cities, by 2050 around 7 billion of us will do. We have become **Homo urbanus** - a different creature, a faster-thinking, more reactive, more genetically diverse human. Human history is increasingly urban history…
- …A million-person city will be built every ten days over the next eighty years. There are currently around thirty **megacities** on the planet and by 2050 they are expected to merge into dozens of megaregions like Hong Kong-Shenzhen-Guangzhou in China, where more than 100 million people will live in a seemingly endless city. The Tokyo metropolis, Japan's national capital region, already hosts 36.7 million people...



Chatto & Windus, London, UK, 2014. ISBN: 978-0701187347

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Chemicals and plastics

UK government Environmental Audit Committee 2019 report

Toxic Chemicals in Everyday Life
https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1805/180504.htm

"The Lancet Commission concluded 'the effects of chemical pollution on human health are poorly defined and its contribution to the global burden of disease is almost certainly underestimated.'87 It suggests that chemicals have the potential 'to cause global epidemics of disease, disability and death.'88 This is linked to a lack of testing of chemicals for their safety and toxicity prior to be being placed on the market. Pre-market evaluation of new chemicals is a recent development and at present, is limited to a small number of high-income countries.89 The World Health Organisation (WHO) estimated the disease burden from chemicals as 1.6 million deaths and 45 million disability-adjusted-life-years in 2016.90 This was an increase on its 2012 estimates and it suggested it is likely to be an underestimate overall as ***data is only available for a small proportion of the chemicals to which people are regularly exposed****.91 In the EU, the annual cost of exposure to endocrine disrupting chemicals alone is estimated at between €109 billion and €157 billion.92 "*

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CENTRE FOR ENVIRONMENTAL HEALTH AND SUSTAINABILITY

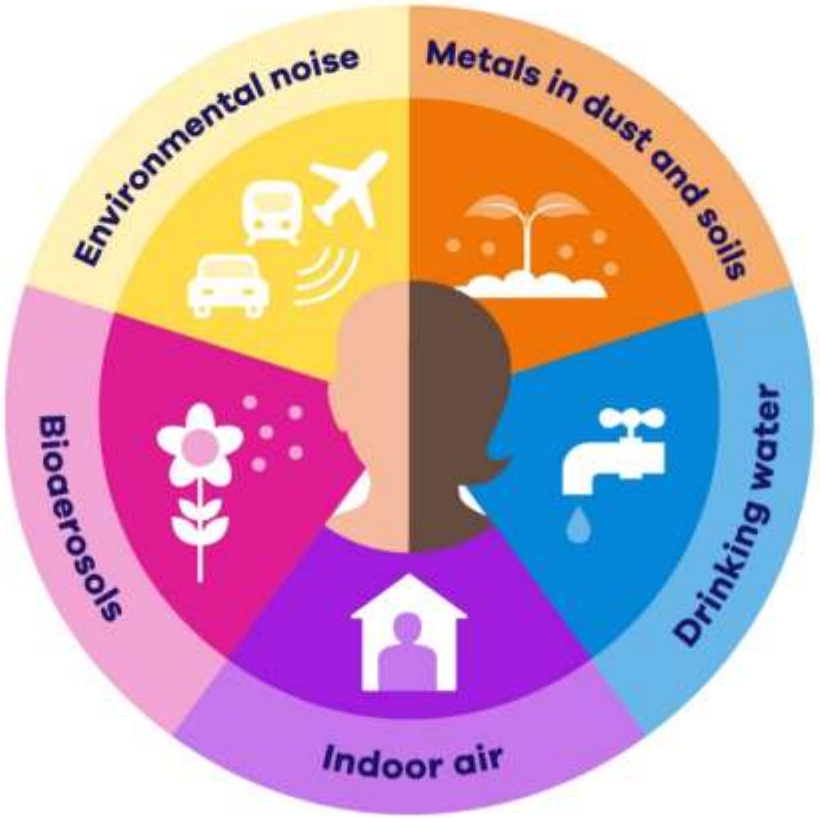
Vision: To improve human health and the health of the environment through cutting edge multidisciplinary research and training, in a changing world

Research areas: air pollution, noise, chemical exposures

NIHR | National Institute for Health Research

NIHR Health Protection Research Unit (HPRU) in Environmental Exposures and Health Development Award at University of Leicester

Research Theme: The Built Environment



UK Health Security Agency

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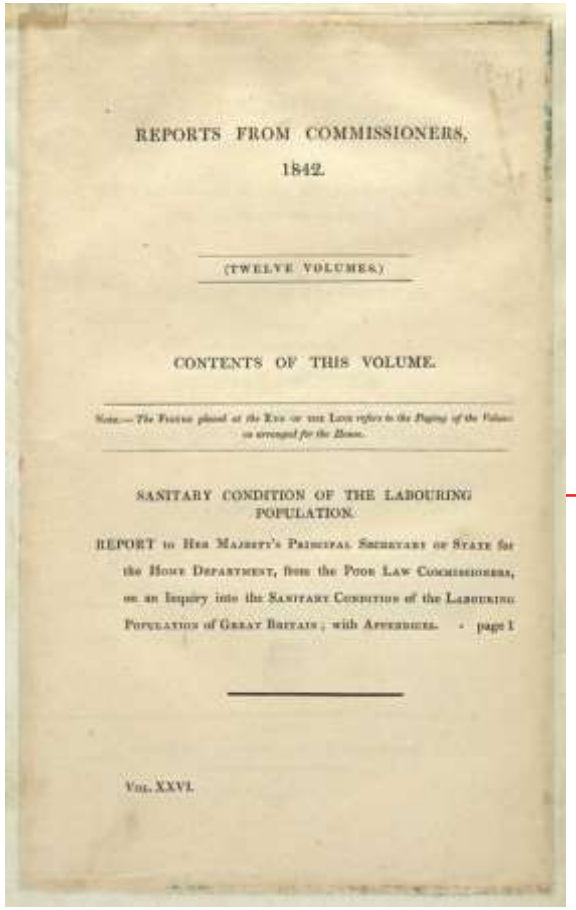
“Learn from history”

The Great Stink



REPORTS FROM COMMISSIONERS,

1842.

(TWELVE VOLUMES.)

CONTENTS OF THIS VOLUME.

SANITARY CONDITION OF THE LABOURING POPULATION.

REPORT to Her Majesty's Principal Secretary of State for the Home Department, from the Poor Law Commissioners, on an Inquiry into the Sanitary Condition of the Labouring Population of Great Britain; with Appendices. - page 1

Vol. XXVI.

1842 Report on the Sanitary Condition of the Labouring Population of Great Britain

Too expensive

Needed:

- refuse removal
- sewerage and clean running water in houses
- a qualified medical officer in each area

Cholera epidemic 1848

Cholera epidemic 1854 (John Snow)

FARADAY GIVING HIS CARD TO FATHER THAMES.

Great stink of London 1858

Bazalgette – London sewers

1875 Public Health Act

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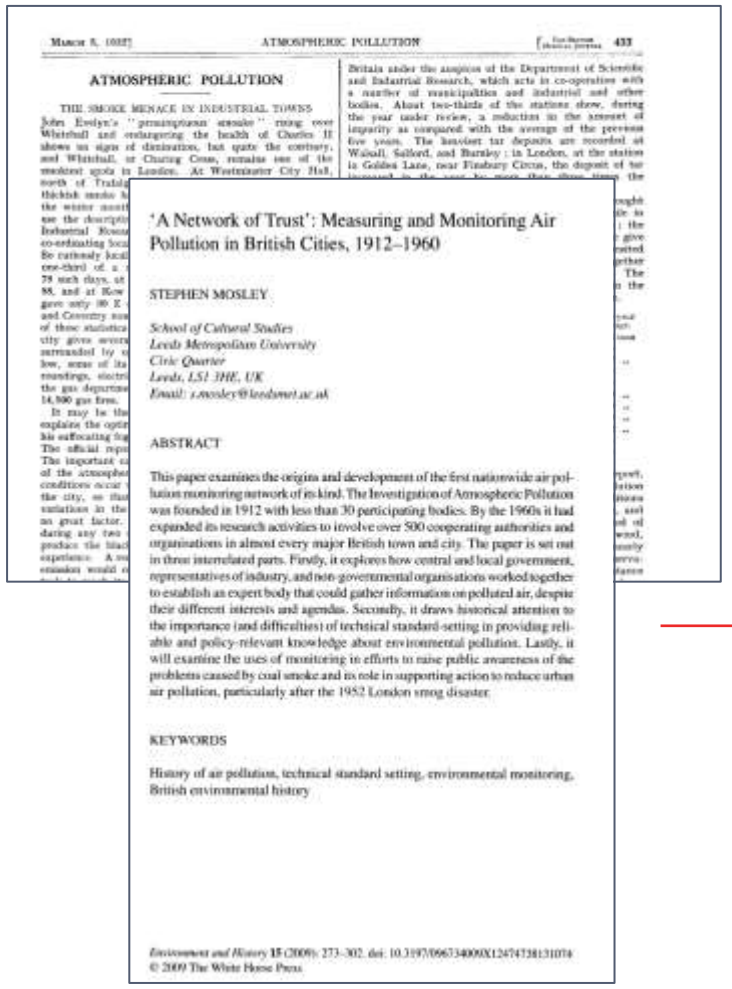
The Great Smog



ATMOSPHERIC POLLUTION

THE SMOKE MENACE IN INDUSTRIAL TOWNS

'A Network of Trust': Measuring and Monitoring Air Pollution in British Cities, 1912–1960

STEPHEN MOSLEY

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ABSTRACT

This paper examines the origins and development of the first nationwide air pollution monitoring network of its kind. The Investigation of Atmospheric Pollution was founded in 1912 with less than 30 participating bodies. By the 1960s it had expanded its research activities to involve over 500 cooperating authorities and organisations in almost every major British town and city. The paper is set out in three interrelated parts. Firstly, it explores how central and local government, representatives of industry, and non-governmental organisations worked together to establish an expert body that could gather information on polluted air, despite their different interests and agendas. Secondly, it draws historical attention to the importance (and difficulties) of technical standard-setting in providing reliable and policy-relevant knowledge about environmental pollution. Lastly, it will examine the uses of monitoring in efforts to raise public awareness of the problems caused by coal smoke and its role in supporting action to reduce urban air pollution, particularly after the 1952 London smog disaster.

KEYWORDS

History of air pollution, technical standard setting, environmental monitoring, British environmental history

Environment and History 15 (2009): 273–302. doi: 10.3197/096734009X12474738131074
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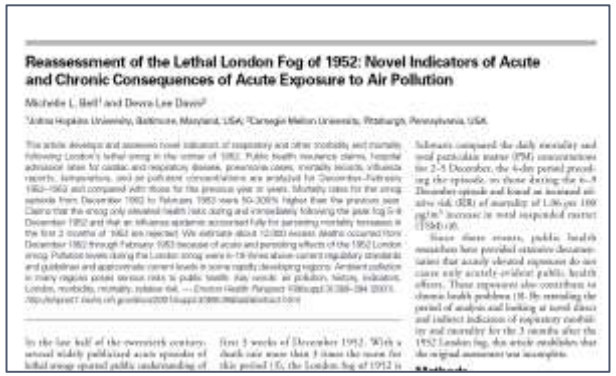
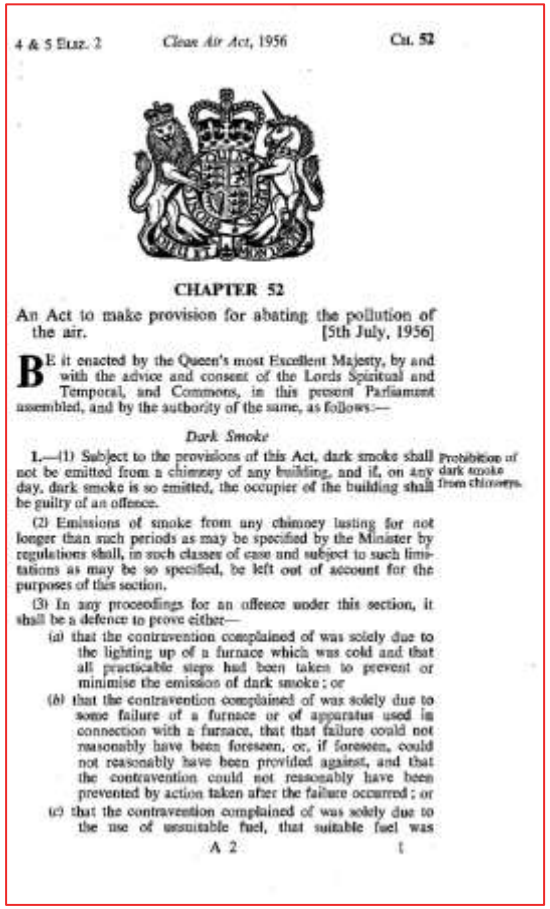
Great smog of London 1952



Reassessment of the Lethal London Fog of 1952: Novel Indicators of Acute and Chronic Consequences of Acute Exposure to Air Pollution

Michelle L. Bell[1] and Devra Lee Davis[2]

[1]Johns Hopkins University, Baltimore, Maryland, USA; [2]Carnegie Mellon University, Pittsburgh, Pennsylvania, USA



4 & 5 ELIZ. 2 — *Clean Air Act, 1956* — CH. 52

CHAPTER 52

An Act to make provision for abating the pollution of the air. [5th July, 1956]

BE it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Dark Smoke

Prohibition of dark smoke from chimneys.

1.—(1) Subject to the provisions of this Act, dark smoke shall not be emitted from a chimney of any building, and if, on any day, dark smoke is so emitted, the occupier of the building shall be guilty of an offence.

(2) Emissions of smoke from any chimney lasting for not longer than such periods as may be specified by the Minister by regulations shall, in such classes of case and subject to such limitations as may be so specified, be left out of account for the purposes of this section.

(3) In any proceedings for an offence under this section, it shall be a defence to prove either—

(a) that the contravention complained of was solely due to the lighting up of a furnace which was cold and that all practicable steps had been taken to prevent or minimise the emission of dark smoke; or

(b) that the contravention complained of was solely due to some failure of a furnace or of apparatus used in connection with a furnace, that that failure could not reasonably have been foreseen, or, if foreseen, could not reasonably have been provided against, and that the contravention could not reasonably have been prevented by action taken after the failure occurred; or

(c) that the contravention complained of was solely due to the use of unsuitable fuel, that suitable fuel was

A 2 1

Clean Air Act 1956

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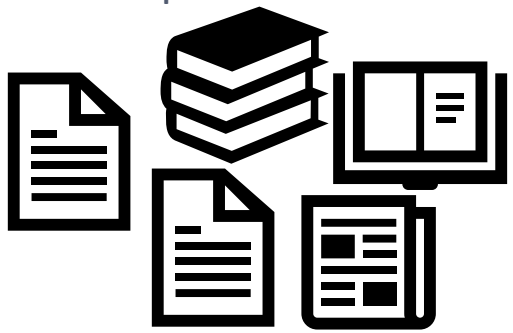
Learning from history

Studies and reports



Great stink of London 1858

Shocking event

Great smog of London 1952

Getting a GRiP? Be patient!

REVIEW

Getting research into practice

Bonnie Sibbald PhD[1] and Martin Roland DM[2]
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Keywords: dissemination, implementation, professional practice, research

Accepted for publication:
4 November 1996

The purpose of the National Health Service is to maximize the health of the population within the available resources. Since resources are finite, it follows that health care professionals have a duty to ensure that the services they deliver are both effective and efficient. The role of health services research is to inform decision making in the NHS by providing knowledge of service cost-effectiveness. This means that research must address questions of relevance to health care providers and purchasers; the findings of research must be critically appraised and synthesized to provide clear guidance, and finally the results must be implemented in practice (Smith & Frew 1996). These are demanding tasks.

The reality is that research often fails to get into practice (Haines & Jones 1994). For example, in two recent studies in the UK, approximately half of patients with ischaemic heart disease were not taking regular aspirin: a third were still not on aspirin at follow-up audits (Carney & Carney 1996; King & Denne 1996). Indeed, it may take years before new

Culture and education

One barrier is the long-standing cultural divide between researchers, clinicians and managers (Antmann *et al.* 1992; Tennison 1996). Researchers sometimes address questions of limited relevance to clinicians, work to timetables too long to meet the needs of managers, and disseminate their findings primarily to other researchers. For their part, clinicians are largely untrained in research methodology or appraisal, and pursue careers within a system which values research principally as a means of job promotion. Mangers lack understanding of the nature and limitations of research and consequently are unable effectively to commission, evaluate or utilize research. If evidence-based health care is to become a reality in the new NHS, these divides must be overcome.

There is a major educational task for researchers, managers and clinicians. For researchers, there is a need to alter the academic culture which values

Journal of Evaluation in Clinical Practice 1997

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“Complex systems”

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Air pollution and lung function in adults

- ~300,000 individuals in the UK Biobank study, modelled annual average air pollution estimates (ESCAPE study model) were assigned to place of residence
- **Each 5 µg/m3 increase in annual average concentration of air pollution particulates <2.5 microns ($PM_{2.5}$) at place of residence was associated with −83.13 mL lower FEV_1 (95% CI −92.50– −73.75 mL)**
- The effect size was approximately double in individuals with below vs. above median income and in individuals working in an occupation at risk of COPD (using a Job Exposure Matrix).


ORIGINAL ARTICLE
COPD AND LUNG FUNCTION

Air pollution, lung function and COPD: results from the population-based UK Biobank study

Dany Doiron, Kees de Hoogh, Nicole Probst-Hensch, Isabel Fortier, Yutong Cai, Sara De Matteis and Anna L. Hansell

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ULEZ…

Evening Standard

SIDER | THE ESCAPIST | THE REVELLER | THE OPTIMIST | COMMENT | TECH | ES BEST | ES MAG | HOMES & PR

9h Tributes paid to 'true public servant' Lord Kerslake after peer dies

7h Five Just St

INSIDER

The anti-Ulez protests: a lightning rod for rage over London's ultra-low emission zone expansion

The expansion of the ultra low emissions zone has provoked outrage among many drivers but, Kate Wills asks, are legitimate concerns becoming tangled up in far-Right conspiracy theories?

Protest against Ulez Zone extension in London, April 2023 / Getty Images

BY KATE WILLS | 13 Jun 2023

A cacophony of car horns and whistles sound over London Bridge, amid chants of "Get Khan Out". There are banners reading "Stop The Toxic Air Lie" and "Our Roads, Our Freedom". An elderly gentleman with a white beard mills about in a hi-vis

June 2023

https://www.theguardian.com/environment/2018/mar/19/london-air-pollution-activists-prepared-to-go-to-prison-to-force-action

March 2018

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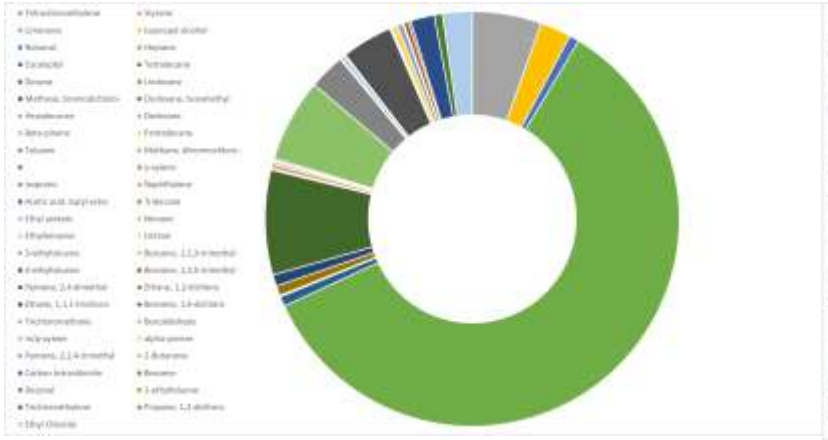

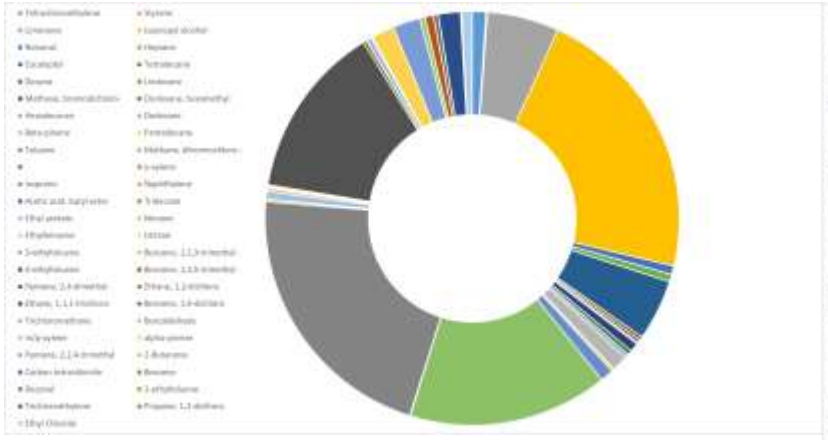

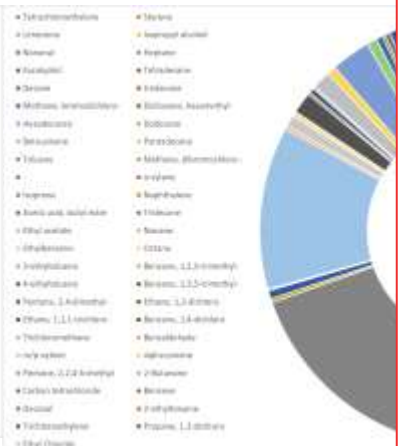

Looking beyond the usual suspects

VOC ‘fingerprints’ in indoor air in six houses – individual chemicals (thanks to Thiphanie Riveron)

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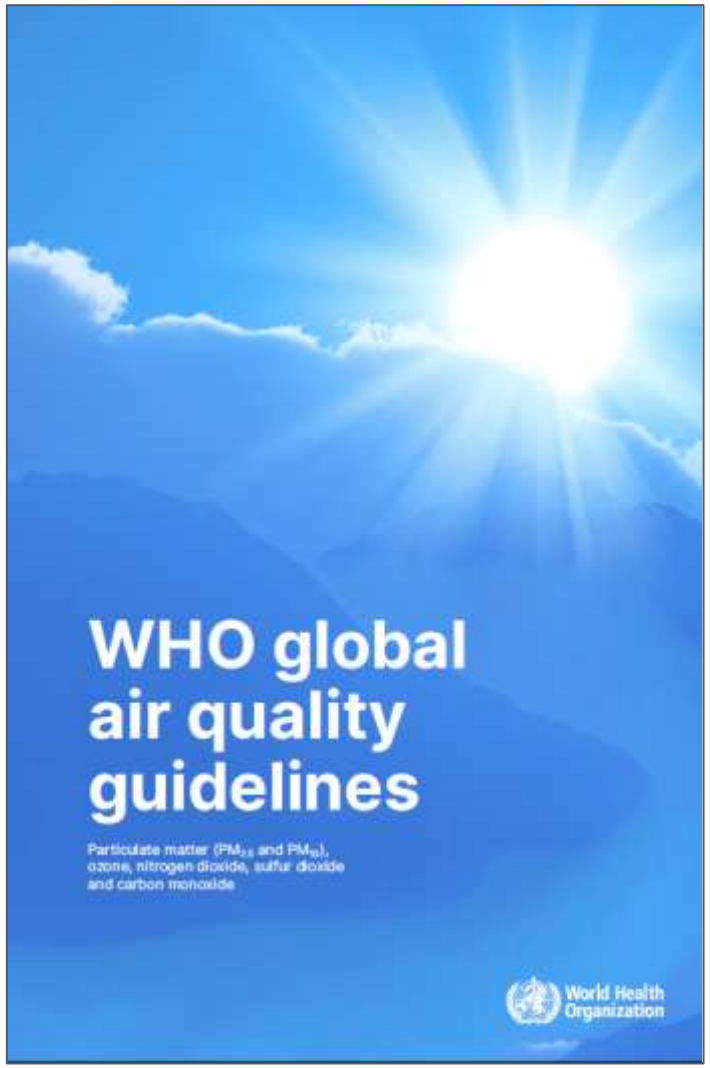
“Interdisciplinary working”

Examples of interdisciplinary working



Clean Air Programme

UK Clean Air Programme
https://www.ukcleanair.org

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Behaviour change

Sustainability Science (2021) 16:2027–2047
https://doi.org/10.1007/s11625-021-01038-2

REVIEW ARTICLE

How do we effectively communicate air pollution to change public attitudes and behaviours? A review

Rosie Riley[1] · Laure de Preux[2] · Peter Capella[1] · Cristian Mejia[3] · Yuya Kajikawa[3,4] · Audrey de Nazelle[1,5]

Received: 19 December 2020 / Accepted: 7 September 2021 / Published online: 27 September 2021

Abstract
Solutions that engage the public are needed to tackle air pollution. Technological approaches are insufficient to bring urban air quality to recommended target levels, and miss out on opportunities to promote health more holistically through behavioural solutions, such as active travel. Behaviour change is not straightforward, however, and is more likely to be achieved when communication campaigns are based on established theory and evidence-based practices. We systematically reviewed the academic literature on air pollution communication campaigns aimed at influencing air pollution-related behaviour. Based on these findings, we developed an evidence-based framework for stimulating behaviour change through engagement. Across the 37 studies selected for analyses, we identified 28 different behaviours assessed using a variety of designs including natural and research-manipulated experiments, cross-sectional and longitudinal surveys and focus groups. While avoidance behaviour (e.g. reducing outdoor activity) followed by contributing behaviours (e.g. reducing idling) were by far the most commonly studied, supporting behaviour (e.g. civil engagement) shows promising results, with the added benefit that supporting local and national policies may eventually lead to the removal of social and physical barriers that prevent wider behavioural changes. Providing a range of actionable information will reduce disengagement due to feelings of powerlessness. Targeted localized information will appear more immediate and engaging, and positive framing will prevent cognitive dissonance whereby people rationalize their behaviour to avoid living with feelings of unease. Communicating the co-benefits of action may persuade individuals with different drivers but as an effective solution, it remains to be explored. Generally, finding ways to connect with people's emotions, including activating social norms and identities and creating a sense of collective responsibility, provide promising yet under-explored directions. Smartphones provide unique opportunities that enable flexible and targeted engagement, but care must be taken to avoid transferring responsibility for action from national and local authorities onto individuals. Multidisciplinary teams involving artists, members of the public, community and pressure groups, policy makers, researchers, and businesses, are needed to co-create the stories and tools that can lead to effective action to tackle air pollution through behavioural solutions.

Keywords Air quality · Communication · Engagement · Campaign · Information role

Riley et al, Sustainability Science 2021

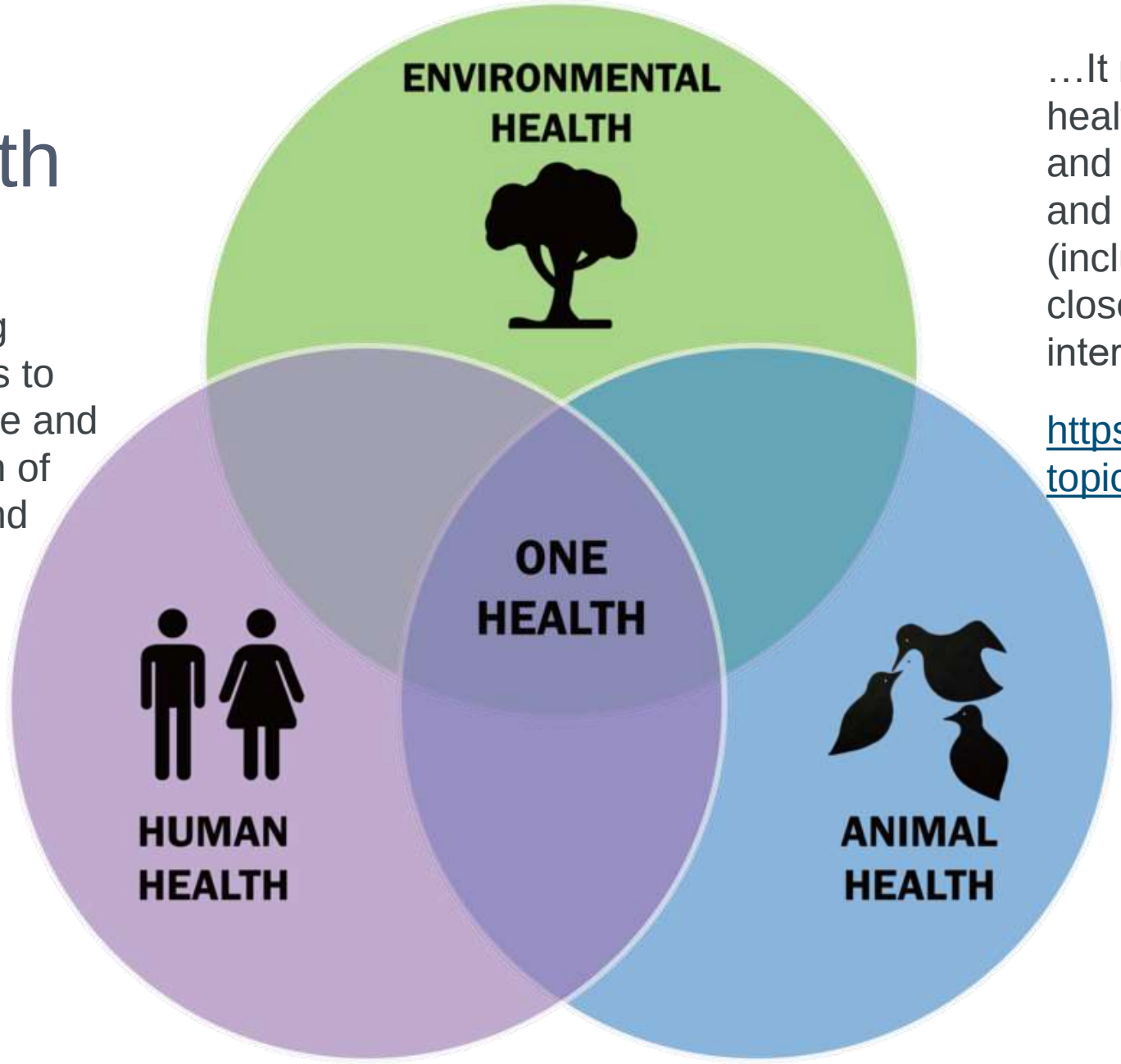
- 28 behaviours identified
- Avoidance behaviours (reducing outdoor activities) and contributing behaviours (reducing idling) best studied
- Establishing social norms
- Activating collective responsibility
- Actionable information
- Multidisciplinary creation of stories and tools

Other options

- Nudge
  - Provide a reason to change
  - Plant alternative behaviours
  - Provide opportunities to practice them
  - Give regular feedback
- Repetition – lessons from marketing
- Having a high profile test case

One health

"One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems….



…It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent."

https://www.who.int/health-topics/one-health

Image from https://en.wikipedia.org/wiki/One_Health CC BY-SA 4.0

Engaging with the Media

[2013]

[2023]

"If there's so much evidence linking about noise and health, why haven't we heard about it?"

Question from the House of Lords Science and Technology Committee enquiry into the impacts of artificial light and noise on human health to expert witness

Engaging with the media

Air pollution, lung function and COPD: results from the population-based UK Biobank study

Doiron D, de Hoogh K, Probst-Hensch N, Fortier I, Cai Y, De Matteis S, Hansell AL. Air pollution, lung function and COPD: results from the population-based UK Biobank study. Eur Respir J. 2019 Jul 25;54(1)

CNN website coverage

Air pollution ages your lungs faster and increases your risk of COPD, study says

By Jen Christensen, CNN

How deadly is air pollution? 01:07

(CNN) — Air pollution does a lot more damage to our lungs than scientists realized, according to a new study in Monday's European Respiratory Journal. Researchers found it ages lungs more quickly and putting us at higher risk of COPD.

Your lung function declines as a part of natural aging, but this study found that exposure to particulate matter pollution ages your lungs even faster -- and the more pollution you're exposed to, the quicker your lungs age.

The Sun newspaper coverage

ked memo

CORRECTIONS & CLARIFICATIONS

Regulated

Lung ills road link

LIVING near a busy road can cause a deadly lung condition, a study found.

It linked air pollution to a surge in chronic obstructive pulmonary disease (COPD), causing extreme breathlessness.

At least 1.2million people have the illness, which is now the most common lung problem after asthma.

The Leicester University findings, based on data from 300,000 people, also showed those in lower-income households were three times more at risk than the better off.

y for your stories

Today's

STRUTT

“It’s the interventions that make the difference”

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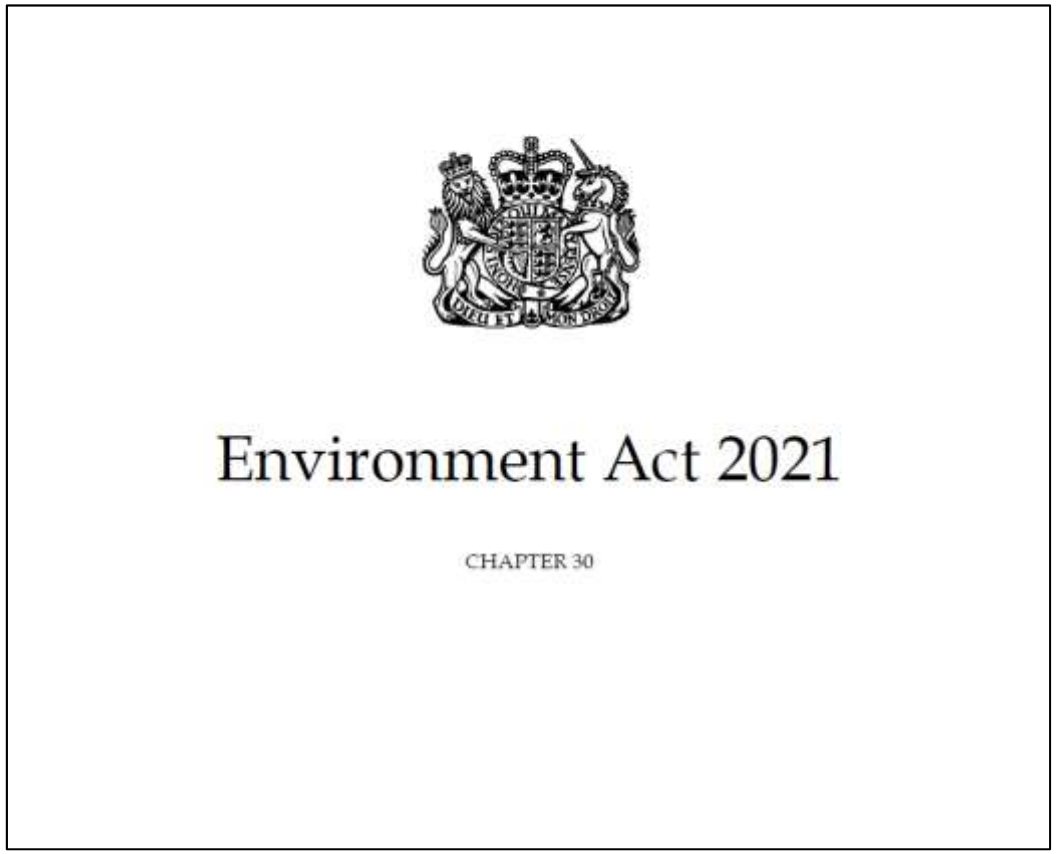
Environment Act 2021: air quality



An annual mean concentration $PM_{2.5}$ target of 10 µg/m³ to be met across England by 2040

- A population exposure reduction target (PERT) of 35% reduction in population exposure across England by 2040 compared to 2018

COMMITTEE ON THE MEDICAL EFFECTS OF AIR POLLUTANTS

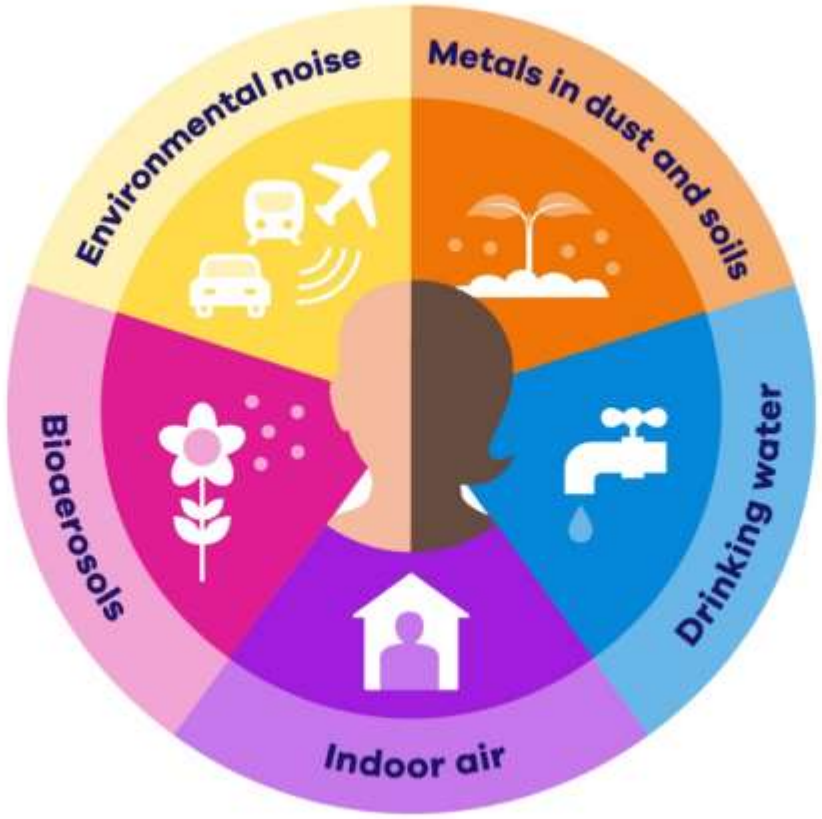
COMEAP inputs: Health evidence relevant to setting $PM_{2.5}$ targets

- Initial advice following a workshop in July 2020 (published in July 2021)
- Detailed advice in March 2021 provided to Defra on the health evidence relevant to setting PM2.5 targets (published in July 2021)
- An update to previous advice (published in March 2022) in the light of revised World Health Organization Air Quality Guidelines
- **COMEAP advice note: Environment Act $PM_{2.5}$ targets (published July 2022) in response to evidence pack published May 2022 to inform public consultation**

- COMEAP statement in response to the publication of the World Health Organization's Air quality guidelines in September 2021 (published July 2022)

Knowledge mobilisation

NIHR Health Protection Research Unit (HPRU) in Environmental Exposures and Health at Leicester – all milestones and deadlines have underpinning impact statements



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Thank you

The Paul Wilkinson Memorial Lecture: The need for action and engagement in science

Anna Hansell
Professor of Environmental Epidemiology
University of Leicester
ah618@leicester.ac.uk

Paul Daryll Wilkinson

Environmental epidemiologist. He was born in Yeovil, UK, on Dec 26, 1959 and died of a pulmonary embolism in Banbury, UK, on Sept 11, 2022 aged 62 years.

Paul Wilkinson, Professor of Environmental Epidemiology at the London School of Hygiene & Tropical Medicine (LSHTM), UK, spent more than two decades researching health in relation to air pollution, the built environment, and climate change. "Besides being technically adept", says Sir Andy Haines, LSHTM's Director from 2001 to 2010 and now its Professor of Environmental Change and Public Health, "Paul had a vision of where he thought we should be going—which was towards a society with health at the centre, where policies supported it through a range of sectors, and also helped to stabilise the climate by reducing greenhouse gas emissions." James Milner, like Wilkinson a member of LSHTM's Department of Public Health, Environments and Society, worked closely with him for 10 years. "Paul was passionate about making things happen", Milner recalls. "For him it wasn't enough just to do science, to publish papers, and leave it at that. He wanted to make things better, to understand how science could change policy."

Wilkinson's enthusiastic support for science-based policy found expression in his participation in two *Lancet* Series. The first, in 2007, was on energy and health. "This was quite ground-breaking at the time", says Haines, with whom Wilkinson worked closely on the Series. "It made links between ill health and lack of access to clean energy, and also the importance of transitioning to clean low carbon energy." The second Series, which appeared 2 years later and built on its predecessor, was on health and climate change and aimed to "accelerate political and public assent for large cuts in greenhouse gas emissions".

Wilkinson started in epidemiology as a research fellow in the Epidemiological Research Unit of the National Heart and Lung Institute (NHLI) in London, UK. He had graduated in medicine from the University of Oxford, UK, in 1985 and spent 4 years in junior medical posts at hospitals in London, Bristol, and elsewhere before joining the NHLI in 1989. 4 years later he moved to LSHTM, specialised in environmental epidemiology, and was eventually awarded a chair there in the discipline.

Housing was among his earliest interests. He set up or took part in studies on the health impact of home ventilation, and on cold weather mortality and morbidity in relation to interventions in home energy efficiency. More generally, he evaluated the UK's plan for avoiding the adverse health effects of cold weather, and looked at the health impact of policies to reduce greenhouse gas emissions in high-income and low-income settings. His agenda also included air pollution and myocardial infarction, mortality in relation to atmospheric ozone depletion, and much else. A recent project for which Wilkinson was Scientific Director was the Wellcome Trust funded Complex Urban Systems for Sustainability and Health (CUSSH) programme. Set up jointly with Michael Davies, Professor of Building Physics and the Environment at University College London, UK, CUSSH works with partner organisations across four continents to help six cities, including Beijing, London, and Nairobi, to develop in ways that improve their population health and environmental sustainability. The ultimate aim is to produce a framework of practicable policy options, and Wilkinson was adept at doing this. "Paul was very inspirational", says Davies. "He encouraged people to think big but with appropriate ambition."

Another big project of which Wilkinson was principal investigator was funded by the EU. PURGE (Public health impacts in URban environments of Greenhouse gas Emissions reduction strategies) ran from 2011 to 2014. Using urban settings in Europe, China, and India as case studies, PURGE examined the effect of these strategies. Among other things, it showed how policies to increase active travel can decrease emissions and improve health, and underlined the importance of renewable energy sources and nuclear power for climate mitigation and health. As always, there was Wilkinson's urge to make things happen. "I've been in meetings or conferences with Paul where people were talking about lots of good research", says Milner. "And then Paul would stand up and say that it was great that everyone was doing this fantastic research, but things aren't changing anywhere near fast enough...We have to do more to influence policy." Haines believes that Wilkinson was motivated by a concern for equity in health, describing him as "a thoroughly good humoured man, kind to colleagues and pretty unflappable". Wilkinson leaves a wife, Kay, and a son, Guy.

Geoff Watts

Lancet Obituary
https://www.thelancet.com/action/showPdf?pii=S0140-6736%2822%2901942-0

LSHTM obituary
https://www.lshtm.ac.uk/newsevents/blogs/2022/obituary-paul-wilkinson